

## **MODIS Team Meeting Minutes**

### **Minutes of the MODIS Team Meeting held on Tuesday March 15, 1994.**

#### **Action Items:**

73. Complete the MODIS brochure and released for printing. Assigned to Bauernschub 10/18/93. Due 11/15/93.
74. Prepare and submit a Configuration Change Request which revises the definition and impact of levels of software criticality for the MODIS Software Management Requirements Document. Assigned to Anderson 10/26/93. Due 12/ 1/93 CLOSED 3/15/94.
75. Determine if the four electronic module boxes can be individually thermal tested in air, or must the thermal testing be done in a vacuum. Assigned to Silva 10/26/93. Due 11/ 9/93
84. Review the Performance Verification Plan with a goal to delete some activities. Assigned to Roberto 2/15/94. Due 3/ 1/94. CLOSED 3/15/94.
85. Submit a CR to split the Software Readiness Review into two reviews. Assigned to K. Anderson 2/15/94. Due 3/ 1/94. CLOSED 3/15/94.

#### **The following items were distributed:**

- 1) Weekly Status Report #129
- 2) SBRC Memos submission from week #121
- 3) Minutes of the previous team meeting

#### **Attendees:**

✓ Dick Weber	Bruce Guenther	✓ Larissa Graziani
✓ John Bauernschub	George Daelemans	✓ Bob Martineau
Rosemary Vail	John Barker	✓ Bob Silva
Lisa Shears	Joann Harnden	Ken Brown
✓ Mike Roberto	✓ Patricia Weir	✓ Robert Kiwak
✓ Nelson Ferragut	✓ Mitch Davis	✓ Harvey Safren
Gene Waluschka	Jack Ellis	✓ Ed Knight
Kate Forrest	✓ Ken Anderson	Harry Montgomery
Bill Barnes	✓ Rick Sabatino	Marvin Maxwell
Les Thompson	✓ Cherie Congedo	✓ Bill Mocarsky/ Rick Mills

### **Team Meeting and Other Topics** **March 15, 1994**

#### **General**

The Performance Verification Plan video teleconference originally scheduled for March 29 th has been canceled. In the same time slot, there will be the business portion of the QMR.

The Quarterly Management Review (QMR) is scheduled at SBRC on March 31 st. There will be a video teleconference with GSFC in Bldg 23, room E 149 starting at 11:00 am EST.

The CDR Action Item responses assigned to GSFC personnel are due on or before April 5th.

The calibration peer review is scheduled for April 13 th and 14 th. The review will be held near GSFC.

### **Optics**

Gene Waluschka spent Monday, March 14 th and Tuesday, March 15 th on MODIS business travel to Denton in Moorestown, NJ, and Zygo in Middlefield, CT respectively. On Monday, Gene inspected the mirror after it was coated. Speedring accepted the coating. There was then a 4 1/2 hour drive to Zygo. All of the "Zygo" interferometer surface figure tests on the scan mirror were completed by about 8 pm Monday evening. The mirror surface quality test was performed using a Zygo interferometer on Monday evening. Speedring accepted Zygo's results. Gene's trip report is in a temail message dated March 17th.

### **System Engineering and Calibration**

The regular weekly telecon was held on Monday, March 14 th. Attendees at SBRC included Neil Therrien, Jim Young, and Dzung Phan. At GSFC, attendees were Harry Montgomery, Ed Knight , and Mike Roberto.

Ed Knight requested the source code for MSAP. SBRC indicated we can get the listing. Ed has a question regarding photon noise and the noise calculations being made by MSAP.

Ed mentioned that John Barker said that it is not easy to come up with an average size for clouds. Jim mentioned the clouds will probably not get much worse than 70 by 140 km. Rather than predict performance based on an average cloud size, Jim will prepare results in tabular form for various cloud sizes.

Ed mentioned there should be no redesign for band#18. Band#18 is better the way it is.

Larry Goldberg and Mike Weinreb (spelling?) are looking at optics transmission as a function of temperature. Jim Young expects this is a weak function. An item for consideration is the linearity of the responsivity curve and the locations of the ground and instrument black bodies relative to this curve.

Harry Montgomery discussed the video teleconference to be held on Thursday, March 17 th with SBRC. This is a dry run of the Calibration Peer Review.

Neil Therrien discussed the reasons for differences between the MSAP results and the results obtained from the MODIS Simulator math model. MSAP uses the average values for quantum efficiency, etc. in its calculations. This should be okay for Signal to Noise Ration (SNR) calculations, etc. made by MSAP. The MODIS Simulator does a more exact integration.

Jim Young has put out a memo on near field stray light (N03645).

### **Software**

Rick Sabatino mentioned that one of the items discussed in the OASIS workshop involved data transfer to GSFC by tape.

### **Structural Analysis**

A memo has been prepared by Mike Viens of Code 313 which addresses concerns about the SBRC's failure analysis of the PC detector cracking problem and the assumption that the detector assembly would experience the same stresses when the assembly is mounted to either a beryllium substrate or an Invar substrate. The memo to Sandra Irish is dated March 3 rd.

## **Electronics**

There was a brief conversation with Dick Julian on March 15<sup>th</sup> to go over changes in the FIFO static RAM memory. This memory has gone from 32K x 8 bit chips to 128K x 8 bit chips.

## **Mechanics**

H.P. Chu of Code 313 has written a memo, dated 23 February 1994, on the MMAS report on the failure of the 2-axis kinematic mount. In his opinion, the failure was caused by both faulty design and poor testing methodology. H.P. Chu concludes that a complete review is necessary in order to correct the errors and to make improvements in the design and testing of the mount.

Tom Venator has prepared a memo on cycle counts for MODIS testing, dated March 8<sup>th</sup>. Tom believes a review of the test program in June and how it fits in the overall test and integration flow for MODIS is required. As mentioned in Tom's memo, the scatter factor of 4 is to be included in the FLAGRO calculations. Tom calculated the total equivalent cycles based on the testing described in Nelson's notes. If the retest factor of 2, scatter factor of 4, and the 0.5 g sine signature testing is included, the number of equivalent cycles are 4232 for the 2 axis mount and 6160 for the 3 axis mount. Without the 0.5 g sine signature tests, the values are 2568 and 1920 respectively.

Tom has provided the new interface MODIS flight limit loads in a memo dated March 8<sup>th</sup>. They are +/-7g, +/-4g, and +/-4g (X,Y, and Z). Use all possible combinations.

A meeting was held on Wednesday, March 16<sup>th</sup> in Steve Brodeur's office on the kinematic mounts. Attendees included Mehmet Basci of Swales, Steve Brodeur, Bill Case, Cherie Congedo, Nelson Ferragut, Jim Mayor of Swales, Mike Roberto, and Tom Venator. Some discussions from the meeting included:

- 1) Mehmet mentioned the need to consider stress concentration factors for either a fatigue or fracture approach. Mehmet has worked with Royce Foreman, the NASA authority in fracture analysis. Mehmet will try to contact Royce at JSC.
- 2) The importance of the inspection of the mounts was discussed. Steve Brodeur mentioned we would like to have the test mounts which survived the vibration at Martin Marietta Astro Space (MMAS). Tom will try to obtain these mounts.
- 3) Bill Case mentioned the importance of analytically being able to predict the failure due to the overtest. Since there was not an inspection for initial crack size before the vibration test, the only way this can be done now is if the failure is found to be due to fatigue (assumes no initial crack). Note: it is not possible to determine initial crack size from the broken mount.
- 4) Nelson Ferragut will work on the number of equivalent load cycles based on the reduced loads from Tom Venator. These reduced loads are due to base lining the Atlas IIAS launch vehicle.
- 5) Mike Roberto expressed his concerns about using the existing mounts for test or flight.
- 6) Jim Mayor will continue with his analysis to determine allowable initial crack size based on the MODIS vibration test program.
- 7) The group will reconvene in one week.

On Friday, March 18<sup>th</sup>, an EOS AM Project meeting was held to discuss the kinematic mounts. Attendees included Chris Scolese, Kevin Grady, Dick Weber, Ray Taylor, Richard Ho, Ken Anderson, Nelson Ferragut, and Mike Roberto. Tom Venator was home sick, but still contributed to the discussions via a teleconference. The purpose of the meeting was to determine whether acceptable kinematic mounts will be ready for the June, 1994 MODIS structural model tests. The outcome of the project meeting was to

continue GSFC analysis and inspection for the existing mounts and meet next Friday. The meeting is documented in a telemail message, dated March 20th.

Mike Roberto March 21, 1994